

FREQUENCY ACQUISITION FOR DATA RECOVERY LOOPS

ABSTRACT OF THE DISCLOSURE

A frequency monitor includes an edge detector which produces a pulse for each rising or falling edge of an error signal. The error signal itself has a frequency that is responsive to a difference between frequencies of two input signals. A switched capacitor circuit has an effective average resistance that depends on the rate or frequency of the edge detector output pulses. A capacitor holds a charge that depends on the effective average resistance of the resistive circuit. Finally, comparator produces an output based on the charge held by the capacitor. The comparator output indicates whether the difference between the two input signal frequencies is less than some predetermined amount. A selector, responsive to the comparator, selects from a data phase detector circuit and a frequency acquisition circuit to control an oscillator. The oscillator produces a clock signal at a sampling frequency, which is used by the detector circuit to receive data.